

Appl. No.09/942,628  
Amdt. dated November 10, 2006  
Reply to Office action of May 11, 2006  
Atty. Docket No. AP1102US

### **Amendments to the Specification**

Please replace the paragraph beginning at page 2, line 19 and the paragraph beginning at page 2, line 23 with the following new paragraphs:

-- Therefore, in accordance with a first aspect of the present invention, there is provided a broad bandwidth, high data rate communications system comprising a transmitter employing Inverse Fast Fourier Transform and a receiver employing Fast Fourier Transform,

the transmitter having means for dividing the bandwidth into a plurality of sub-bands each for a respective one of a corresponding plurality of sub-band signals, each of the sub-band signals being modulated with a respective portion of input data to be transmitted; and means for performing Inverse Fast Fourier Transform (IFFT) upon the sub-band signals using, for each sub-band signal, a respective one of a plurality of different IFFTs, combining the transformed sub-band signals and transmitting the combined transformed signals to the receiver;

the receiver having means for receiving the combined transformed sub-band signals, separating the sub-band signals and performing forward Fast Fourier Transform thereupon individually using, for each transformed sub-band signal, a respective one of a plurality of different FFTs corresponding to those in the transmitter.

In accordance with a second aspect of the present invention there is provided a transmitter for use in a broad bandwidth, high data rate communications system employing Fast Fourier Transform, the transmitter having means for dividing the bandwidth into a plurality of sub-bands each for a respective one of a corresponding plurality of sub-band signals, each of the sub-band signals being modulated with a respective portion of input data to be transmitted; and means for performing Inverse Fast Fourier Transform (IFFT) upon the sub-band signals using, for each sub-band signal, a respective one of a plurality of different IFFTs, combining the transformed sub-band signals and transmitting the combined transformed signals.

In accordance with a third aspect of the present invention, there is provided a receiver for use in a broad bandwidth, high data rate communications system, in which transmitted signals are divided into sub-bands and converted using, for each sub-band signal, a respective one of a plurality of Inverse Fast Fourier Transforms (IFFTs), the receiver having:

means for receiving and separating a plurality of sub-band signals in said corresponding plurality of sub-bands;

and means for performing Fast Fourier Transform upon the received sub-band signals using, for each sub-band signal, a respective one of a plurality of different FFTs corresponding to the IFFTs.

Other aspects of the present invention concern methods corresponding to the first, second and third aspects, respectively. --